CLAIMS

What is claimed is:

1. A method for generating two matchable streams of packets for delivery to a mobile station from two different base stations, the method comprising

generating a stream of link layer frames by each of the base stations wherein each of the frames is of the same length,

in each of the base stations, filling in the frames with the packets starting with the same one of the packets, and

transmitting the filled-in frames from each of the base stations to the mobile station as the matchable streams.

2. The method as recited in claim 1 wherein only fully filled-in frames are transmitted unless a timer expires or the network layer of the base stations releases a partially filled-in one of the frames for transmission.

3. A method for synchronizing corresponding streams of packets sent to a mobile station from two different base stations, each of the packets having a corresponding sequence number, the method comprising

generating a stream of link layer frames by each of the base stations wherein each of the frames is of the same length,

in each of the base stations, filling in the frames with the packets starting with the same one of the packets,

transmitting fully filled-in frames from each of the base stations to the mobile station,

detecting two streams of frames at the mobile station wherein one of the streams is transmitted by the first of the base stations and another of the streams is transmitted by the second of the base stations,

determining the packet sequence number of each of the packets in each of the streams, and

initiating a re-synchronization procedure whenever packets in one or both of the streams do not have packet sequence numbers that are consecutive.

4. The method as recited in claim 3 wherein the first of the base stations receives packets k and m but no packets between k and m, m>k, and wherein the initiating a re-synchronization procedure includes

sending a request from the first of the base stations to the second of the base stations to restart synchronization from packet q, q>m, and

transmitting packet q from both of the base stations to the mobile station in the q-th one of the frames.

5. The method as recited in claim 3 wherein the first of the base stations receives packets k and m but no packets between k and m, m>k, and wherein the initiating a re-synchronization procedure includes

sending a request from the first of the base stations to the second of the base stations to restart synchronization from packet q, q>m,

sending by the first of the base stations all packets received before packet q and preparing for delivery of packets greater than or equal q,

upon receiving the request from the first of the base stations, sending an acknowledgement from the second of the base stations to the first of the base stations that resynchronization can be accommodated by the second of the base stations starting with packet q,

sending by the second of the base stations all packets received before packet q and preparing for delivery of packets greater than or equal q, and

transmitting packet q from both of the base stations to the mobile station in the q-th one of the frames.

6. The method as recited in claim 3 wherein the first of the base stations receives packets k and m but no packets between k and m, m>k, and wherein the initiating a re-synchronization procedure includes

sending a request from the first of the base stations to the second of the base stations to restart synchronization from packet q, q>m,

sending by the first of the base stations all packets received before packet q and preparing for delivery of packets greater than or equal q,

upon receiving the request from the first of the base stations, sending an response from the second of the base stations to the first of the base stations that resynchronization can be accommodated by the second of the base stations only starting with packet r > q,

sending by the second of the base stations all packets received before packet r and preparing for delivery of packets greater than or equal r, and

transmitting packet r from both of the base stations to the mobile station in the r-th one of the frames.

7. A method for transmitting data from a base station, said method comprising the steps of:

generating layer -2 frames of the same length;

filling each of said generated frames with data blocks received from a layer above layer -2; and

transmitting only said fully filled frames, unless

a timer expires, or

instructions are received from the layer above layer-2 to transmit the frame currently being filled.

8. The method of claim 7, wherein layer -2 is a link layer protocol that is executed on a radio interface of the base station.

9. The method of claim 8, wherein the layer above the link layer is a network layer executing an IP layer protocol and the data blocks are comprised of IP packets.

10. The method of claim 7 further comprising the steps of:

receiving at the base station a first data block, k, and a second data block, m;

losing data content synchronization between blocks k and m; and

based on said loss of data content synchronization sending a request from the base station to at least one other base station to initiate re-synchronization of data transmission beginning from a third data block, q, where q>m.

11. The method of claim 10, wherein data transmission re-synchronization at the base station comprises the steps of:

immediately transmitting all data blocks received before data block q from the base station;

receiving acknowledgment from at least one other base station responsive to said sent request; and

responsive to said acknowledgment filling each of said generated frames beginning with data block q and all data blocks received thereafter from a layer above layer -2; and

transmitting only said fully filled frames, unless a times expires, or instructions are received from the layer above layer -2 to transmit the frame currently being filled.

12. The method of claim 11, wherein said loss of data content synchronization is because of a data gap between data blocks k and m.

13. The method of claim 12, further comprising the steps of numbering each data block and incrementing each data block number by a count of one each time a data block is transmitted.

14. The method of claim 11, wherein layer -2 is the link layer protocol that is executed on a radio interface of the base station.

15. The method of claim 14, wherein the layer above the link layer is network layer executing an IP layer protocol and the data blocks are comprised of IP packets.

16. A base station for transmitting data, the data being comprised of data blocks received from a data block generator, said base station comprising:

a layer -2 frame generator for generating layer -2 frames of the same length;

means coupled to said layer -2 frame generator for filling each frame generated by said layer -2 frame generator with the data blocks; and

a transmitter coupled to said filling means, wherein said transmitter sends out only fully filled frames, unless a timer expires or instructions are received from the data block generator to transmit the frame currently being filled.

17. The base station of claim 16 wherein said layer -2 frame generator is a processor executing a link layer protocol on a radio interface of the base station.

18. The method of claim 17 wherein said data block generator generates IP packets.